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**Quarterly Report – Public Page**

For Period Ending: September 30, 2010

Contract Number: DTPH56-07-T-000006

Prepared for: United States Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Office of Pipeline Safety

Project Title: "Validation of Assessment Methods for Production Scale Girth Welding of High Strength Pipelines with Multiple Pipe Sources, #275"

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## Background

This project addresses gaps in the understanding of girth welding of X100 grade high strength steel pipelines. The objectives of the project are to:

1. Test a large set of girth welds produced under realistic conditions by a state of the art high productivity gas metal arc welding (GMAW) system;
2. Demonstrate the effect of material variability between pipes, between heats and between pipe manufacturers; and
3. Validate current and proposed new weld defect assessment methods against the performance of a large set of welds made under field production conditions.

The project will test girth welds made during the construction of the BP X100 Operational Trial to determine their properties and defect tolerance. The activities will include: a) Review of construction records and selection of welds for examination; b) Test program design; c) Weld testing and examination; d) Evaluation of defect tolerance of welds using fitness for purpose assessment criteria; and e) Reporting and dissemination of results.

## Progress in the Quarter

The University of Gent has completed all of the testing and plan to submit a test report by the end of December 2010.

The project team has undertaken an independent review and analysis of the test results for each weld as they have been completed and analyzed the results of the curved wide plate test program using the girth weld assessment methods presented in API 1104, EPRG and CSA Z662. In addition, the test results have also been assessed using the fracture mechanics assessment methods in BS 7910 and API 579-1/ASME FFS-1 that are often used to assess girth weld defects.

The team is in the process of writing the final report and plan to issue the first draft by February 2011.

## Plans for Future Activity

Over the next quarterly reporting period, the team will submit the draft final report for comment.